

## REMARKS

### I. STATUS OF APPLICATION

Claims 1, 3, 4, 6, 12-15, 17, 18, 20, and 28-32 are pending.

In the presently pending Office Action, the claims are rejected as follows:

Claims 1, 3, 6, 12, 13 and 27 under 35 U.S.C. § 103 over Mathews et al. U.S. Patent 6,686,649 ("Mathews") in view of Luce et al. U.S. Patent 4,008,564 ("Luce");

Claims 4 and 30 under 35 U.S.C. § 103 over Mathews in view of Luce and further in view of Mullins, U.S. Patent 4,736,069 ("Mullins");

Claims 14, 15, 17 and 20 under 35 U.S.C. § 103 over Mathews in view of Luce and further in view of Kirkpatrick U.S. Patent Publication 2002/0186618 ("Kirkpatrick");

Claim 18 under 35 U.S.C. § 103 Mathews as modified and applied to claim 15, and further in view of Mullins; and

Claim 32 under 35 U.S.C. § 103 over Mathews in view of Luce and further in view of Hobbs U.S. Patent 4,659,236 ("Hobbs").

### II. RELEVANT LAW

Prior to discussing the specifics of the rejections, Applicants' attorney wishes to set forth the following points of law:

As stated in MPEP § 2143, in order to establish a *prima facie* case of obviousness, three basic criteria under 35 U.S.C. § 103 must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or

references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. In *re* Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented. While the sequence of these questions might be reordered in any particular case, the factors continue to define the inquiry that controls.

If a court, or patent examiner, conducts this analysis and concludes the claimed subject matter was obvious, the claim is invalid or unpatentable under § 103. *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727; 82 U.S.P.Q.2d 1385 (2007), citing, in part *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966).

However, the Court in *KSR* continued: "A factfinder should be aware, of course, of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning. See *Graham*, 383 U.S., at 36, 86 S. Ct. 684, 15 L. Ed. 2d 545 (warning against a "temptation to read into the prior art the teachings of the invention in issue" and instructing courts to "guard against slipping into the use of hindsight" (quoting *Monroe Auto Equipment Co. v. Heckethorn Mfg. & Supply Co.*, 332 F.2d 406, 412 (CA6 1964)))."

The Court in *KSR* further explained that when the prior art teaches away from a combination, that combination is more likely to be nonobvious. Notably, the Court relied on the Federal Circuit's statement, in *In re Gurley*, as follows:

"A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant. . . [or] if it suggests that the line of development flowing from the reference's disclosure is unlikely to be productive of the result sought by the applicant." *In re Gurley* 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed. Cir. 1994).

(Emphasis added.)

### III. ANALYSIS OF THE REJECTION - THE MATHEWS PRIMARY REFERENCE

The primary reference, Mathews, is relied on for an alleged teaching, stated in the

comments in support of the rejection as follows:

Regarding claim 1, Mathews et al. disclose a circuit board [I 02, figure 4], comprising an electronic component [104] mounted on the circuit board; a heat conducting structure [152; column 6, lines 7-11] immediately adjacent to the electronic component and increasing a thermal mass of the electronic component so as to reduce a thermal drift of the electronic component.

In the rejection, column 6, lines 7-11 of Mathews are cited in support of the proposition that Mathews teaches the element of

a heat-conducting structure immediately adjacent to the electronic component and increasing a thermal mass of the electronic component so as to reduce a thermal drift of the electronic component

as recited in claim 1, and recited similarly in independent claims 15 and 28.

Applicants respectfully traverse this reading of the cited language from Mathews. That language actually states something quite different:

Referring now to FIGS. 1, 2, and 3 together, shield 152 is formed of an electrically conductive material. Illustratively, shield 152 is formed of a stamped, formed, or deposited metal such as stainless-steel, copper or tin alloy. In this embodiment, shield 152 is in the shape of a hollow rectangular box having its bottom missing. Stated another way, shield 152 is a rectangular lid.

The cited language does not say that the shield 152 is a "heat-conducting structure," merely that it is "electrically conductive." This, in and of itself, is sufficient to demonstrate that the cited language does not teach the claimed invention.

Note that Mathews goes on to teach at column 9, lines 54-67, that the actual purposes of the shield 152 are (i) to "prevent electronic components... from receiving unwanted radiation" (lines 56-58), and (ii) to "[prevent] electronic components... from emanating unwanted radiation..." (lines 59-61) Thus, it will be seen that the shield 152 has nothing to do with conducting heat; rather, it is an electromagnetic shield.

It might be argued that the shield 152 could still conduct heat because it is made of stainless-steel, copper, or tin, as per the above quoted language. However, note also that the shield 152 is "formed of a stamped, formed or deposited metal..." A person of ordinary skill in the art would not form a "heat-conducting structure" by deposition. Deposition is used for producing thin layers, for their electrical conductivity. Notwithstanding the rejection, in reality Mathews teaches that the shield 152 is a structural element which, while well-suited for its actual purpose as an electromagnetic shield, may be too thin for "heat conducting."

Referring back to the points of law cited above, it will be seen that a teaching of the shield 152 as, possibly, being "deposited" so as to form a (presumably) thin, electrically conductive electromagnetic shield, but which may be completely unsuitable for effective 'heat conducting', is a teaching away from the claimed invention. Therefore, as per the Supreme Court in *KSR*, citing the Federal Circuit in *In re Gurley*, is not a proper rejection under section 103.

Nevertheless, even if, *arguendo*, we were to grant this strained reading of the shield 152 of Mathews as to a "heat-conducting structure," where is there any teaching that the shield 152 "[increases] a thermal mass" of Mathews' electrical component 104? Where is there any teaching that the shield 152 "[reduces] a thermal drift" of that component? Neither of these claimed aspects are taught, mentioned, suggested, or inferred.

Rather, the rejection seems to assume that any structural element which is arguably (even if incorrectly) construed as being heat conductive, necessarily also has the properties of "increasing a thermal mass of the electronic component so as to reduce a thermal drift of the electronic component". Mathews teaches or suggests no such thing. Thus, the rejection is hindsight, which is based on a "[reading] into the prior art the teachings of the invention in issue" as per *KSR*, above. For this reason as well, the rejection is not proper.

As noted above, the independent claims 15 and 28 recite aspects of the invention similarly to those quoted from claim 1. Therefore, all three of the independent claims, and their dependent progeny, are patentably distinct over Mathews, taken alone

#### IV. ANALYSIS OF THE REJECTION - THE SECONDARY REFERENCES

The secondary references cited in support of rejections of respective subsets of the claims also do not teach or suggest the above-discussed aspects of the claimed invention.

In the comments in support of the rejection, it is stipulated that "Luce was use for the teaching of the functionality of an electronic component and not the heatsink/emi shielding structure."

Mullins is relied on for a teaching of a ceramic structure to minimize vibration degradation. This also is unrelated to the claimed thermal properties of the claimed invention, and Mullins gives no teaching or suggestion of thermal properties of that ceramic structure.

Kirkpatrick is relied on for a teaching of clock synchronization, but does not teach or suggest a structure with thermal properties as recited in the claimed invention.

Finally, Hobbs is relied on for a teaching of a Styrofoam thermal insulator, which certainly does not have the thermal properties of the claimed invention, nor are there other elements disclosed elsewhere in Hobbs which teach or suggest the claimed invention.

It will therefore be seen that a person of ordinary skill in the art would have found no teaching or suggestion of the claimed invention from the cited references, taken singly or in combination. It is respectfully submitted that the claimed invention is patentably distinct over the prior art.

#### CONCLUSION AND PRAYER FOR RELIEF

In light of the foregoing, it is submitted that the remaining claims are in condition for allowance. It is respectfully requested that the claims be allowed.

The Examiner is invited to contact the undersigned attorney by telephone, between 8:30 and 5:00 Pacific time, if it is believed that such a telephone interview will expedite prosecution of the application.

Respectfully submitted,

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